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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.   | CONFIRMATION NO. |
|-----------------|-------------|----------------------|-----------------------|------------------|
| 10/750,373      | 12/31/2003  | Jonathan Westphal    | 80001                 | 4894             |
| 27975           | 7590        | 08/26/2004           |                       |                  |
|                 |             |                      | EXAMINER              |                  |
|                 |             |                      | BOUTSIKARIS, LEONIDAS |                  |
|                 |             |                      | ART UNIT              | PAPER NUMBER     |
|                 |             |                      | 2872                  |                  |

DATE MAILED: 08/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |
|------------------------------|------------------------|---------------------|
|                              | 10/750,373             | WESTPHAL, JONATHAN  |
| Examiner                     | Art Unit               |                     |
| Leo Boutsikaris              | 2872                   |                     |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 31 December 2003.

2a)  This action is FINAL.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 1-17 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-4 and 14-17 is/are rejected.

7)  Claim(s) 5-13 is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on 12/31/04 is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4/5/04, 6/21/04.

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_ .

5)  Notice of Informal Patent Application (PTO-152)

6)  Other: \_\_\_\_ .

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 14-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Bulow (US 6,128,110).

Regarding claim 1, Bulow discloses an optical element (Fig. 20) comprising: two control inputs S1 and S2, and an optical processing arrangement comprising mirrors OM10, OM12, M80, and beam splitter OS10 that corresponds to a logical NOR function of the two inputs S1 and S2 (lines 35-53, col. 23).

Regarding claim 2, the two inputs S1 and S2 are optical inputs (lines 42-44, col. 22).

Regarding claim 4, a single optical laser source may be used to provide the two optical inputs (lines 60-63, col. 20).

Regarding claim 3, the optical arrangement of Fig. 21 is such that one of the optical outputs represents the logical NOR function of control inputs CS1, CS2, wherein said inputs may be electrical inputs (see output 7 in the truth table of col. 25-26, for logic states 1, 9, 49, and 58, and lines 45-46, col. 24).

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Regarding claims 14-16, the optical NOR gate is part of an optical processor (lines 25-40, col. 22). 359

Regarding claim 17, the optical NOR gate of Fig. 20 may be used in conjunction with a communication network controller (lines 10-14, col. 4).

***Allowable Subject Matter***

Claims 5-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 5-13 are allowable over the prior art of record for at least the reason that even though the prior art discloses optical NOR gates, the prior art fails to teach or reasonably suggest an optical element comprising at least one combination of optical elements producing respective XOR and COIN function outputs of the two control inputs which function outputs are used in producing a logical NOR function of the two control inputs, as set forth by the claimed combination.

In the NOR gate of Fig. 20, the NOR function is achieved by using the combination of output S5 and constant input N1.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Leo Boutsikaris whose telephone number is 571-272-2308.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Leo Boutsikaris, Ph.D.  
Patent Examiner, AU 2872  
August 22, 2004



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